



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,829	06/28/2001	Raja Krishnaswamy	MS174293.1	5228
27195	7590	02/01/2008		
AMIN. TUROCY & CALVIN, LLP 24TH FLOOR, NATIONAL CITY CENTER 1900 EAST NINTH STREET CLEVELAND, OH 44114			EXAMINER CHANKONG, DOHM	
			ART UNIT 2152	PAPER NUMBER
			NOTIFICATION DATE 02/01/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket1@thepatentattorneys.com  
hholmes@thepatentattorneys.com  
osteuball@thepatentattorneys.com

# Office Action Summary

Application No.

09/893,829

Applicant(s)

KRISHNASWAMY ET AL.

Examiner

Dohm Chankong

Art Unit

2152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### DETAILED ACTION

1> This action is in response to Applicant's request for continued examination. Claims 1, 14, 15, 23, and 27 are amended. Claims 1-8, 10-15, 17-23 and 27 are presented for further examination.

2> This is a non-final rejection.

#### *Continued Examination Under 37 CFR 1.114*

3> A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10.30.2007 has been entered.

#### *Response to Arguments*

4> Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection necessitated by Applicant's amendment.

#### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5> Claims 1-8, 10-14, and 27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The current position of the Patent Office in regard to statutory inventions under 35 U.S.C §101 for software claims is that software *per se* does not fall into any of the statutory categories. That is, software *per se* is neither a process, a machine, a manufacture, or a composition of matter.

6> Independent claim 1 is directed to a system comprising a method call interceptor and an application code generic proxy. Applicant's specification makes it clear these claim elements can be implemented as pure software. Applicant's specification describes that components and elements of the invention can be implemented as hardware, a combination of hardware and software, or software alone. The use of the word "system" does not inherently mean that the claim is directed to a machine. Only if at least one of the claimed elements of the system is an actual physical part of a device can the system as claimed constitute part of a device to be a machine within the meaning of §101.

While directed to software *per se*, the claim is directed to the abstract idea of intercepting method calls and can be saved from statutory oblivion if it recites a practical application. Practical applications can be provided by either a physical transformation or a useful, concrete, and tangible result. Here, there is clearly no physical transformation that results of applying the abstract idea. However, there appears to be a useful, concrete, and tangible result in the form of passing results from the proxy to the entity that generated the method call.

Thus, claim 1 is only rejected under 35 U.S.C §101 as failing to fall within a statutory category. As to claims 2-8 and 10-13, they do not cure any of above cited deficiencies of claim 1 and are therefore rejected for at least the same reasons set forth for claim 1.

7> Claim 14 is directed to a computer readable medium containing components. Applicant's specification describes that these components may be implemented as pure software [pg. 7, lines 9-11]. Claim 14 is therefore directed to software alone. As discussed with respect to claim 1, software *per se* claims fail to fall within a statutory category. Thus, claim 14 is also rejected under 35 U.S.C §101 as failing to fall within a statutory category.

8> Claim 27 is in a form that seems to invoke the rebuttable presumption that 35 U.S.C § 112, 6th paragraph analysis applies in the interpretation of the claimed elements. In general, "means-for" analysis finds corresponding "structure" in Applicant's specification and would be limited to the described embodiments for those means. However, Applicant's specification is entirely devoid of any description of corresponding structure for any of the "means" elements in claim 27. Instead, Applicant's specification describes that components and elements of the invention can be implemented as hardware, a combination of hardware and software, or software alone. Therefore, based on Applicant's specification, one of ordinary skill in the art may reasonably interpret the "means" elements as constituting software *per se*. Claim 27 is directed to software alone and fails to recite any subject matter that falls within a statutory category.

*Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9> Claims 1, 14, 15, 23, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 14, 15, and 23 are rejected for containing unclear language. The claims recite in part that the interceptor is accessible to application code "to at least one of adapt or extend functionalities." This language is confusing as it is unclear what claim element is adapting or extending "functionalities." It is also unclear as to which claim element's functionalities are being adapted or extended.

Claim 27 invokes 35 U.S.C §112, sixth paragraph but fails to provide any corresponding structure to the means claimed. A claim limitation will be presumed to invoke 35 U.S.C. 112, sixth paragraph, if it meets the following 3-prong analysis: (A) the claim limitations must use the phrase "means for" or "step for;" (B) the "means for" or "step for" must be modified by functional language; and (C) the phrase "means for" or "step for" must not be modified by sufficient structure, material, or acts for achieving the specified function. MPEP §2181(I).

Here, claim 27 clearly meets the first prong and second prongs. As to the third prong, none of the "means for" elements are modified by sufficient structure, material, or acts for achieving the specified function. For example, "means for accessing method call interception

functionality” is entirely devoid of any modifying language. The other “means for” elements also lack appropriate modifying language to achieve the specified function.

Having invoked 35 U.S.C §112, sixth paragraph, the means-plus-function language shall be construed to cover the corresponding structure in the specification. MPEP §2181(II). The test for meeting the definiteness requirement is that the corresponding structure of a means-plus-function limitation must be disclosed in the specification in a way that one skilled in the art will understand what structure (or material or acts) will perform the recited function. Id.

Here, Applicant’s specification is entirely devoid of any description of the corresponding structure for the means-plus-function limitations found in claim 27. It would not have been clear to one skilled in the art what structure, material, or acts are intended to perform the recited functions. Therefore, claim 27 is rejected under 35 U.S.C §112, second paragraph for failing to meet the definiteness requirement.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10> The rejection of the claim limitation directed to the interceptor's accessibility to application code is informed by the Applicant's specification. Specifically, Applicant's specification states that "intercepting a method call and making such interception accessible to an application developer can include receiving control and receiving a data structure...populated with information concerning the intercepted method call" [Applicant's specification, pg. 3, lines 1-4]. Further, the information concerning the call can include method names and input parameter information [pg. 3, lines 4-9]. For the purposes of this rejection, the interpretation of an "interceptor accessible to application code" relies on this explanation within Applicant's specification.

11> Claims 1-8 and 9-14 are rejected under 35 U.S.C §103(a) as being unpatentable over Arnold et al, U.S Patent No. 6,393,497 ["Arnold"], in view of Hollander et al, U.S Patent No. 6,823,460 ["Hollander"], in further view of Clarke et al, U.S Patent Publication No. 2002|0035642 ["Clarke"].

12> As to claim 1, Arnold discloses a system for interacting with an object, the system comprising:

an application code generic proxy that receives an intercepted method call, invokes a method on the object, receives results from the object and passes results to the entity that generated the intercepted method call based at least in part on the intercepted method call operability of the application code generic proxy modified by the application code, the application code generic proxy performs proxy pre-processing to optimize remote method

call invocation before invoking the method on the object [Figure 6 | Figure 7 «items 704, 705» | column 9 «lines 4-37»]. Arnold does not expressly disclose a method call interceptor accessible to application code to at least one of adapt or extend functionalities nor does Arnold expressly disclose performing machine learning.

With respect to an application code accessible method call interceptor and routing intercepted methods to proxies, Hollander discloses these features. Hollander is directed to a method of intercepting function calls that originate from the operating system and routing them to a proxy [column 4 «lines 33-39»]. Hollander's user-supplied custom code corresponds to Applicant's claimed application code and Hollander's function calls read on Applicant's method calls. Hollander user-supplied custom code has access to a data structure that is populated by information, such as the call's parameters, relating to the intercepted call [abstract : "input parameters might be filtered and changed by the user code" | column 8 «lines 8-11»]. In this manner, the user-supplied code can perform pre-processing on the intercepted call by affecting its parameters. By way of this improved interception functionality, Hollander discloses that the user code has enhanced and extended capability to control, manage and handle system events [column 4 «lines 40-47»].

Since such functionality is well known and utilized in conventional systems, it would have been obvious to one of ordinary skill in the art to have modified Arnold's proxy system to included Hollander's interception functionality. One would have been motivated to enable an interceptor that was accessible to user-code so that users would have more flexibility to manage the object environment by providing extended capability to control and manage system related function calls.

With respect to the machine learning feature, Arnold clearly discloses performing preprocessing, including optimization of the invocation by caching previous requests [column 9 «lines 4-15»]. In the same field of invention, Clarke is directed to a system with a proxy system in between [Figure 1]. The proxy utilizes machine learning in the step of preprocessing method calls from the client in order to optimize the invocation of the calls [0027 where : Clarke discloses that the proxy is adaptive in selecting appropriate servers with the proxy “learning over time which origin servers are most prone to overload”].

It would have been obvious to one of ordinary skill in the art to incorporate Clarke’s teachings of an adaptive proxy into Arnold’s system. Clarke discloses that an adaptive proxy helps control network congestion over the network. Thus, one would have been motivated to modify Arnold’s proxy to be adaptive to optimize network efficiency of handling requests over the network.

13> As to claim 2, Arnold discloses the object is located across a remote boundary [Figure 1 «item 606»].

14> As to claim 3, Arnold discloses the object is marshaled by reference [column 8 «lines 38-45»].

15> As to claim 4, Arnold discloses the object is marshaled by value [column 9 «lines 10-15»].

16> As to claim 5, Arnold discloses populating a call information data store with information associated with the intercepted method call, the call information data store is accessible to the application code generic proxy [column 9 «lines 16-27» | see also Hollander, abstract].

17> As to claim 6, Arnold discloses the call information data store is populated with at least one of: a method name and a class/interface defining method data [column 7 «lines 46-49» | column 9 «lines 59-66»].

18> As to claim 7, Arnold discloses the call information data store is a message object that be serialized and passed across a remote boundary [column 9 «lines 16-27»].

19> As to claim 8, Arnold discloses transferring control to a method in the application code generic proxy, the method in the application code generic proxy overrides a base class method defined in a base class object from which the application code generic proxy inherits [column 10 «lines 20-31»].

20> As to claim 10, Arnold discloses proxy preprocessing further comprises at least one of: transaction processing, object migration, monitoring remote method calls, caching local data, caching remote data, and controlling remote method call invocations [column 9 «lines 4-27»].

21> As to claim 11, Arnold discloses the application code generic proxy performing proxy post-processing after receiving the results from the object [Figure 7 «item 712»].

22> As to claim 12, Arnold discloses the proxy post-processing comprises at least one of transaction processing, monitoring remote method calls, caching local data, and controlling remote method call invocations [column 9 «lines 4-37»].

23> As to claim 13, Arnold discloses the proxy invoking the method on the object by invoking a method available in remoting infrastructure [column 10 «lines 20-32»].

24> As to claim 14, as it does not teach or further define over previously claimed limitations, it is rejected for at least the same reasons set forth for claim 1.

25> Claims 15 and 20-22 are rejected under 35 U.S.C §103(a) as being unpatentable over Colyer, U.S Patent No. 5,903,725, in view of Clarke, in further view of Hollander.

26> As to claim 15 Colyer discloses a method for interacting with an object, the method comprising:

creating a base class proxy object [column 7 «lines 37-51» : parent class];

creating an application code generic proxy, the application code generic proxy inherits from the base class proxy object [column 7 «lines 37-51» | column 11 «lines 45-64»];

overriding a base class method defined in the base class, the overridden method receives an intercepted method call [column 3 «lines 1-11» | column 12 «lines 4-18»];  
intercepting a method call on the object [column 3 «lines 1-11»];  
routing the method call to the application code generic proxy [column 3 «line 61» to column 4 «line 44»];  
invoking the method on the object [column 3 «line 53» to column 4 «line 25»];  
receiving a first result from the object [column 3 «lines 44-59»]; and  
returning a second result to the entity that generated the intercepted method call [column 3 «line 61» to column 4 «line 6»].

Colyer does not expressly disclose adapting the proxy functionality with the proxy performing pre-processing comprising transaction processing and machine learning nor does Colyer teach that the interception is made accessible to a developer to at least one of adapt or extend functionalities.

With respect to the pre-processing functionality, Clarke discloses this feature. Clarke is directed to a client-server system with a proxy system in between [Figure 1]. Clarke's proxy is adaptive in the sense that the proxy utilizes machine learning in the step of preprocessing method calls from the client in order to optimize the invocation of the calls [0027 where : Clarke discloses that the proxy is adaptive in selecting appropriate servers with the proxy "learning over time which origin servers are most prone to overload"].

It would have been obvious to one of ordinary skill in the art to incorporate Clarke's teachings of an adaptive proxy into Colyer's system. Clarke discloses that an adaptive proxy helps control network congestion over the network. Thus, one would have

been motivated to modify Colyer's proxy to be adaptive to optimize network efficiency of handling requests over the network.

With respect to an application code accessible method call interceptor and routing intercepted methods to proxies, Hollander discloses these features. Hollander is directed to a method of intercepting function calls that originate from the operating system and routing them to a proxy [column 4 «lines 33-39»]. Hollander's user-supplied custom code corresponds to Applicant's claimed application code and Hollander's function calls read on Applicant's method calls. Hollander user-supplied custom code has access to a data structure that is populated by information, such as the call's parameters, relating to the intercepted call [abstract : "input parameters might be filtered and changed by the user code" | column 8 «lines 8-11»]. By way of this improved interception functionality, Hollander discloses that the user code has enhanced and extended capability to control, manage and handle system events [column 4 «lines 40-47»].

Since such functionality is well known and utilized in conventional systems, it would have been obvious to one of ordinary skill in the art to have modified Colyer's proxy system to included Hollander's interception functionality. One would have been motivated to enable an interceptor that was accessible to user-code so that users would have more flexibility to manage the object environment.

27> As to claims 20-22, Colyer discloses the object is located across a remote boundary [Figure 4], the object is marshaled by reference [column 11 «lines 51-54»] and the object is marshaled by value [column 4 «lines 9-12»].

28> Claims 17-19, 23 and 27 are rejected under 35 U.S.C §103(a) as being unpatentable over Colyer, Clarke, and Hollander, in further view of Arnold.

29> As to claim 17, Colyer does not disclose the preprocessing including load balancing, object migration, object persisting, monitoring remote method calls.

30> In the same field of invention, Arnold discloses a proxy performing preprocessing including object migration, monitoring remote method calls, caching local data, caching remote data, and controlling remote method call invocations [column 9 «lines 4-27»].

It would have been obvious to incorporate Arnold's preprocessing steps into Colyer's proxy object. Arnold discloses that such steps improve network response to method call invocation. Thus, one would have been motivated to combine the references to improve upon Colyer's proxy for the reasons stated in Arnold.

31> As to claims 18 and 19, Colyer does not expressly disclose performing post-processing.

32> Arnold discloses the application code generic proxy performing proxy post-processing after receiving the results from the object [Figure 7 «item 712»], whereby the post processing includes transaction processing, monitoring remote method calls, caching local data, and controlling remote method call invocations [column 9 «lines 4-37»]. It would have been obvious to one of ordinary skill in the art to incorporate Arnold's post processing steps into

Colyer's system to enable caching of objects which improves network response to method call invocation.

33> As to claims 23 and 27, as they do not teach or further define over the previously claimed limitations, they are rejected for at least the same reasons set forth for claims 15 and 17-19.

#### *Conclusion*

34> The prior art made of record on the PTO 892 and not relied upon is considered pertinent to applicant's disclosure.

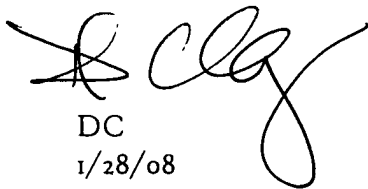
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dohm Chankong whose telephone number is 571.272.3942. The examiner can normally be reached on Monday-Friday [8:30 AM to 4:30 PM].

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571.272.3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
09/893,829  
Art Unit: 2152

Page 16

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
DC  
1/28/08